AMENDMENT TO THE SPECIFICATION

Please amend the paragraph beginning on page 3, line 25 as follows:

One of the difficulties of using high-temperature analyses, or combustion techniques, for carbon analysis is the relatively severe temperature changes that the sample undergoes during processing. A relatively small amount of liquid sample can become a significant amount of steam and carbon dioxide. Additionally, the thermal shock upon the combustion chamber can be significant as a specimen is introduced at a relatively low temperature and quickly heated by the combustion chamber to combustion temperatures. In general, therefore, combustion techniques are performed in a batch mode. In such a system, a pre-selected amount of sample is conveyed to the combustion chamber to ensure that the thermal mass and resultant gas and steam do ~~no~~ not overly stress the system. However, batch-processing introduces a temporal lag that can adversely ~~effect~~ affect real-time control of water processing.

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Please amend the paragraph beginning on page 7, line 6 as follows:

Furnace 126 is maintained at an elevated temperature, such as 680°C, in order to effect high-temperature oxidation. To maintain this elevated temperature, furnace 126 is thermally coupled to heating elements 142 that are controlled by temperature controller 144 based upon a measured temperature of furnace 126 by sensor 146, which is preferably a thermocouple. Specimen 110 and pressurized gas are thus conveyed to combustion furnace 126 at furnace inlet 148. A combustion tube 150 is coupled to inlet 148 and conveys the specimen and pressurized gas to outlet 152 after it has been heated and exposed to the combustion catalyst. Preferably, tube 150 is a precision ceramic combustion tube such as that commercially available from Mindrum

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Precision, Inc. of Rancho Cucamonga, California. Within combustion tube 150, a quantity of quartz wool is preferably positioned in order to support catalyst pellets, such as platinum-based catalyst pellets. Preferably, one gram of quartz wool is disposed within combustion tube 150 as well as about 20.1 grams of catalyst pellets such as commercially available from Tekmar Company, of Cincinnati, OH. Additionally, 40 grams of quartz granules are also preferably positioned within combustion tube 150. The heat of combustion tube 150 as well as the catalytic materials disposed therein cause the sample to combine with oxygen and generate steam and carbon dioxide. Additional particulate matter may also be heated and conveyed from outlet 152. The heated materials are provided from outlet 152 to thermoelectric cooler 154. Preferably, thermoelectric cooler 154 employs a Peltier device generating a low temperature based upon the well-known Peltier effect. In one preferred embodiment, cooler 154 is a commercially available thermoelectric gas chiller available under the trade designation Model 600, from Universal Analyzer Inc., in Nevada. As cooler 154 cools the heated materials, water and particulate matter condense and flow into drain line 156 which is coupled to drain pump 158 to pump such materials out drain port 116. However, carbon dioxide does not flow into drain line 156, but is instead conveyed along line 160 to detector 118. Preferably, detector 118 is a known non-dispersive infrared detector that is capable of resolving 0 to 100 parts per million of CO_2. In the embodiment just described, the read-out of detector 118 will correspond with total carbon. However, those skilled in the art will recognize that organic carbon can also be measured by first conveying the sample to a solution that reacts with inorganic carbon, such as, for example, a 20% phosphoric acid solution that reacts with inorganic carbon to form carbonate and bi-carbonate. This reaction can be used to separate the inorganic carbon from the sample stream prior to

analysis thereby causing detector 118 to provide an indication of total organic carbon.